

REMARKS

Favorable consideration of this application is requested in view of the above amendments and the following remarks. New claims 14-20 have been presented for examination.

Independent claim 14 is a method claim that tracks features of claim 1. Claims 15-20 track previous dependent claims 2-5, 7 and 8. To the extent that a restriction issue would be raised between product and method claims, Applicants confirm their intent to pursue the method aspect of the invention. See MPEP 819.

Claims 1-5, 7 and 8 were rejected under 35 U.S.C. 103(a) as being unpatentable over Sunada (US patent 5,508,557) in view of Junya (JP05047954) and Cozar et al. (US patent 5,744,868). Applicants respectfully traverse this rejection if it is applied to the new claims.

Sunada is directed to a surface mounting type diode that can be mounted conveniently on a surface of a circuit board at a high speed while eliminating or reducing the likelihood of improper mounting. Sunada discloses that the resin is injected into the molding cavity 7a through the runner 7b (see column 4, lines 15-17 and Figure 4). Figure 4 shows that the resin injecting port is located in the top face of the resin package, on the short side of the resultant package. By providing the resin injection port at the top face of the resin package, there is a problem of the formation of resin eddies and/or accumulations, leading to an insufficient sealing resin filling. Furthermore, the pressure of the injected sealing resin as disclosed by Sunada could cause the metal wire 5 to topple. Additionally, because the spacing between the inner wall of the resin die and the inner lead becomes narrow, it is difficult to carry out filling sufficiently under the inner lead.

Claim 14 requires the sealing resin to be injected from a position on a longer side of the sealing resin package that is offset toward one shorter side thereof. By injecting sealing resin from a longer side at a position that is offset toward one of the shorter sides of the package, the resin fills into the areas above and under the lead smoothly, thereby preventing problems with insufficient resin filling and also preventing the bonding wire from toppling. Neither the process steps of claim 14 nor its resultant advantages are suggested by Sunada.

Junya is directed to an invention that protects an outer lead that is exposed to the outside of a resin. A part of an outer surface of the lead is exposed from a lower surface of the resin, and the rest of the outer surface is sealed in the resin.

Cozar et al. is directed to an invention that provides a means for fabricating connection leads having a thickness of less than 0.1 mm for an electronic component, and having a mechanical strength to allow easy handling of the electronic component and its mounting on a printed circuit. The Cozar et al. invention relates to a composition of connection leads and an electronic component using the connection leads.


Neither of these references remedies the deficiency of Sunada in failing to describe or suggest a method for forming a resin-sealed surface mount electronic device in which the injection port is located on the longer side that is offset towards one shorter side thereof. Thus, claims 14-20 are patentable over Sunada in view of Junya and Cozar et al.

In view of the above, it is submitted that the application is now in condition for allowance. If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicants' primary attorney-of record, Douglas P. Mueller (Reg. No. 30,300), at (612) 371.5237.

Respectfully submitted,

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